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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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MACMILLAN SOBANSKI & TODD, LLC
ONE MARITIME PLAZA FOURTH FLOOR
720 WATER STREET
TOLEDO, OH 43604-1619

EXAMINER	
AN, SANG WOOK	

ART UNIT	PAPER NUMBER
1732	

DATE MAILED: 05/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/716,226	BOGSTAD ET AL.	
	Examiner	Art Unit	
	Sang W. An	1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 3, and 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deemer et al (6428735) in view of Gottlieb (6258313), supported by Geankoplis, Transport Processes and Unit Operations *Third Edition* (Pg 216-217) and Tipler, Physics For Scientists and Engineers (Pg 445-446).

Regarding claim 1, Deemer et al teach a reheat stretch blow-molding process (abstract) comprising: preparing a preform (col 4 lines 18-35), heating the preform, utilizing a plurality of infrared energy sources positioned adjacent said preform (col 8 lines 8-28). Deemer et al also teach the ability for the heating lamps to have an

adjustable temperature control to meet the heating needs of a segment of the preform (col 8 lines 8-14).

In addition, Deemer et al teach that the energy source for heating preforms for blow-molding is adjustable permitting each, as necessary, to have a position with a different amount of space from each energy source to the preform (col 7 lines 66-67 & col 8 lines 1-2), suggesting amount of heating of the preform could be controlled by the position of the energy source to the preform. Deemer et al also teach that sidewall thickness of the preform is not constant and that varying thickness in a preform could be heated so that the temperature is consistent at all thickness (col 5 lines 33-38). Furthermore, Deemer et al suggests that it is more difficult to drive heat through thicker parts of the preform (col 6 lines 40-43) as supported by Fourier's Law of heat conduction taught by Geankoplis: $rate\ of\ heat\ transfer\ process = \frac{driving\ force}{resis\tan ce}$. In our present discussion, the driving force is the temperature difference between the outer wall and the inner wall or in other words the energy from the infrared source. The resistance is the thickness of the wall. To those of ordinary skill in the art, Fourier's law clearly shows a relationship that as the thickness of the heated substrate increases the energy from the heating source needs to increase as well in order to maintain consistent temperature throughout the heated object with varying thicknesses.

Concerning the inversely proportional spacing of the energy source to the preform, Deemer inherently teaches that since more energy is needed for thicker parts of the preform the lamp must be positioned closer to the preform (col 7 lines 66-67 & col

8 lines 1-2). This is supported by the equation of the intensity of a point source taught by Tipler:

$$I = \frac{P}{4\pi r^2}$$

Where *I* is the intensity, *P* is the power of the source, and *r* is the distance from the source to the object being heated. The above equation shows that in order to increase the intensity/amount of heating at a given point, at constant *P*, the distance, *r*, would need to be decreased, clearly an inverse relationship. Therefore in order to provide more heating for thicker preforms, one would decrease the distance between the energy source and the preform.

However, Deemer et al do not teach that the reheat blow-molded preform is polypropylene. Nevertheless Gottlieb teaches using polypropylene preform to reheat stretch blow-mold into a bottle (abstract). Therefore it would have been obvious to use polypropylene in Deemer et al's method of reheat stretch blow-molding in order to produce high clarity container made from polypropylene with enhanced oxygen barrier (col 2 lines 7-12).

Regarding claim 3, Deemer et al do not teach that the polypropylene contains one or more adjuvants selected from the group consisting of clarifiers, fillers, extenders, lubricants, and infrared energy absorbing agents. However, Gottlieb teaches using clarifiers to reheat stretch blow-mold a preform (col 2 lines 7-13). Therefore it would have been obvious to use the teachings of Gottlieb in Deemer et al's method for reheat stretch blow-molding in order to provide clarified polymer resins (col 2 line 8).

Regarding claim 5, Deemer et al teach using infrared energy sources comprising heat lamps (col 6 lines 15-20).

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deemer et al (6428735) in view of Gottlieb (6258313) supported by Geankoplis, Transport Processes and Unit Operations *Third Edition* (Pg 216-217) and Tipler, Physics For Scientists and Engineers (Pg 445-446) further in view of Kohn et al (5819991). The teachings of Deemer et al in view of Gottlieb are applied as described above for claims 1, 3, and 5. Deemer et al do not teach that the polypropylene comprises polypropylene selected from the group consisting of high, medium, and low-density polypropylene. However, Kohn et al teach using high density polypropylene for making blow-molded bottle-type container (claim 4). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use the teachings of Kohn et al in Gottlieb's method for reheat stretch blow-molding in order to obtain a desired material property such as stiffness and strength.

4. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deemer et al (6428735) in view of Gottlieb (6258313) and Kohn et al (5819991), supported by Geankoplis, Transport Processes and Unit Operations *Third Edition* (Pg 216-217) and Tipler, Physics For Scientists and Engineers (Pg 445-446).

Regarding claim 6, Deemer et al teach a reheat stretch blow-molding process (abstract) comprising: preparing a preform (col 4 lines 18-35), heating the preform, utilizing a plurality of infrared energy sources positioned adjacent said preform (col 8 lines 8-28). Deemer et al also teach the ability for the heating lamps to have an

adjustable temperature control to meet the heating needs of a segment of the preform (col 8 lines 8-14).

In addition, Deemer et al teach that the energy source for heating preforms for blow-molding is adjustable permitting each, as necessary, to have a position with a different amount of space from each energy source to the preform (col 7 lines 66-67 & col 8 lines 1-2), suggesting amount of heating of the preform could be controlled by the position of the energy source to the preform. Deemer et al also teach that sidewall thickness of the preform is not constant and that varying thickness in a preform could be heated so that the temperature is consistent at all thickness (col 5 lines 33-38). Furthermore, Deemer et al suggests that it is more difficult to drive heat through thicker parts of the preform (col 6 lines 40-43) as supported by Fourier's Law of heat conduction taught by Geankoplis: $rate\ of\ heat\ transfer\ process = \frac{driving\ force}{resis\tan ce}$. In our present discussion, the driving force is the temperature difference between the outer wall and the inner wall or in other words the energy from the infrared source. The resistance is the thickness of the wall. To those of ordinary skill in the art, Fourier's law clearly shows a relationship that as the thickness of the heated substrate increases the energy from the heating source needs to increase as well in order to maintain consistent temperature throughout the heated object with varying thicknesses.

Concerning the inversely proportional spacing of the energy source to the preform, Deemer inherently teaches that since more energy is needed for thicker parts of the preform the lamp must be positioned closer to the preform (col 7 lines 66-67 & col

8 lines 1-2). This is supported by the equation of the intensity of a point source taught by Tipler:

$$I = \frac{P}{4\pi r^2}$$

Where *I* is the intensity, *P* is the power of the source, and *r* is the distance from the source to the object being heated. The above equation shows that in order to increase the intensity/amount of heating at a given point, at constant *P*, the distance, *r*, would need to be decreased, clearly an inverse relationship. Therefore in order to provide more heating for thicker preforms, one would decrease the distance between the energy source and the preform.

However, Deemer et al do not teach that the reheat blow-molded preform is polypropylene. Nevertheless Gottlieb teaches using polypropylene preform to reheat stretch blow-mold into a bottle (abstract). Therefore it would have been obvious to use polypropylene in Deemer et al's method of reheat stretch blow-molding in order to produce high clarity container made from polypropylene with enhanced oxygen barrier (col 2 lines 7-12).

Deemer et al do not teach that the polypropylene contains one or more adjuvants selected from the group consisting of clarifiers, fillers, extenders, lubricants, and infrared energy absorbing agents. However, Gottlieb teaches using clarifiers to reheat stretch blow-mold a preform (col 2 lines 7-13). Therefore it would have been obvious to use the teachings of Gottlieb in Deemer et al's method for reheat stretch blow-molding in order to provide clarified polymer resins (col 2 line 8).

Deemer et al do not teach that the polypropylene comprises polypropylene selected from the group consisting of high, medium, and low-density polypropylene. However, Kohn et al teach using high density polypropylene for making blow-molded bottle-type container (claim 4). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use the teachings of Kohn et al in Gottlieb's method for reheat stretch blow-molding in order to obtain a desired material property such as stiffness and strength.

Regarding claim 7, Deemer et al teach using infrared energy sources comprising heat lamps (col 6 lines 15-20).

Response to Argument

Applicants argue that Gottlieb does not teach nor even remotely suggest the required limitation set forth in Applicants' Claims, that "... the infrared energy sources [be] positioned adjacent said preform at distances inversely proportional to the wall thickness of said preform directly apposing said infrared energy sources." Gottlieb teaches that heating a preform having varying longitudinal thicknesses is accomplished by increasing or decreasing the amount of electrical energy supplied to the exterior IR radiation sources. See, e.g., Col. 4, lines 23-25; viz, "[t]he apparatus of the present invention can be preferentially controlled so that it can be adapted for use with plastics of varying... shapes of preforms." Applicant's arguments, above with respect to the rejection(s) of claim(s) 1 and 6 under 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further

consideration, a new ground(s) of rejection is made in view of Deemer et al in view of Gottlieb.

Applicants argue that Fourier's law is an expression of one aspect of the operation of Gottlieb's process for differentially heating the exterior of a preform by increasing or decreasing the electrical power applied to individual IR radiation sources within the array of exterior preform heaters and that Genekoplis does not teach nor even remotely suggest modifying the operation of Gottlieb's process; Genekoplis merely mathematically describes an aspect of Gottlieb's process. As the applicant has clearly stated, Fourier's Law is a mathematical expression of Gottlieb's process. While it does not cure the deficiencies of Gottlieb, the examiner asserts that Genekpolis supports Gottlieb's suggested teachings as shown in the 103(a) rejection above.

Applicants argue that Tipler does not teach nor even remotely suggest modifying the way Gottlieb differentially heats the exterior of a preform and that Tipler merely mathematically describes one aspect of Gottlieb's process. However, the examiner asserts that Tipler teaches the inversely proportional spacing of the energy source to the preform. The equation is as follows:

$$I = \frac{P}{4\pi r^2}$$

Where *I* is the intensity, *P* is the power of the source, and *r* is the distance from the source to the object being heated. The above equation shows that in order to increase the intensity/amount of heating at a given point, at constant *P*, the distance, *r*, would need to be decreased, clearly an inverse relationship. Therefore in order to provide

more heating for thicker preforms, one would decrease the distance between the energy source and the preform.

The above equation is well-known in the art and those of ordinary skill in the art would have known to decrease the distance between the energy source and the preform in order to provide more heating/intensity for thicker preforms due to the requirement for more energy to heat up.

5. The applicants argue that Zenger discloses throughout that its blow molded plastic containers may be used in combination with a hard plmstic base cup. This base cup, attached to the bottom of the blow- molded plastic container by an adhesive, is made from dimensionally stable, high-density polypropylene or polyester, and provides a flat or footed base upon which the blow-molded plastic container can stand upright. This combination of blow-molded container and attached hard plastic base cup is used by a member of container manufacturers. It is well-known to anyone having even a cursory knowledge of the plastic container art that these base cups are not blow-molded, as incorrectly asserted by the Examiner in the outstanding Office Action rejection. Applicant's arguments, above with respect to the rejection(s) of claim(s) 2 under 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kohn et al.

Applicants argue that nowhere does Wu disclose nor even remotely suggest Applicants' claimed limitation that "... the infrared energy sources (be) positioned adjacent said preform at distances inversely proportional to the wall thickness of said

preform directly apposing said infrared energy sources." To the contrary, Wu confirms Gottlieb's teaching that differential heating is accomplished by delivering more or less electrical energy to the individual IR radiant heaters adjacent the exterior of a blow-molding preform. Examiner agrees with the applicants arguments above; however, this reference was used to reject claim 3 concerning "polypropylene containing one or more adjuvants selected from the group consisting of clarifiers, filler, extenders, lubricants, and infrared energy absorbing agents. Therefore, Wu reference is still considered to be a relevant reference.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang W. An whose telephone number is (571) 272-1997. The examiner can normally be reached on Mon-Fri 7 AM - 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni can be reached on (571) 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sang Wook An
Patent Examiner
Art Unit 1732
May 15, 2006

SaA

CHRISTINA JOHNSON
PRIMARY EXAMINER
5/12/06